

BIO-MEDICAL APPLICATIONS OF ULTRASOUND

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Despite of the classical perception of an ultrasound as a diagnostic modality, it possesses a great potential for therapeutic applications. In the range of experimental studies it has been shown that the ultrasound is capable to trigger biological effects including direct cell lysis, apoptosis and drug delivery. All those effects have a potential to be harnessed for therapeutic purposes such as cancer treatment. For an example, the induction of apoptosis with ultrasound provides a unique opportunity to eliminate tumour tissues in safe and non-contact mode. Currently, few companies (USA, EU and Japan) offer ultrasound systems capable to directly destroy cancer tissue via ablation. The main trends of therapeutic applications of ultrasound will be highlighted in the presentation.